

1 **REDUCED-ERROR PROCESSING OF TRANSFORMED DIGITAL DATA**

2 **ABSTRACT**

3 This invention solves problems due to employing error
4 degraded data in digital processing. It particularly solves
5 multi-generation problems wherein transform data degrade
6 during each inverse transform and forward transform cycle
7 even without any processing due to the rounding and clipping
8 errors. It provides methods, systems and devices for
9 reduced-error processing of transform-coded data. After
10 inverse transformation of transform data, high-precision
11 numbers are manipulated. The converting to integers and
12 clipping to an allowed range steps are executed at any stage
13 in the manipulation to obtain integer representation of the
14 inverse transformed data such as for displaying of the data.
15 However, further processing including forward transforming
16 back to the transform domain is executed on the
17 high-precision numbers. Thus, the rounding and clipping
18 errors are not present in the processed data. Although
19 advantageous to many applications employing digital
20 transformed data, the invention is particularly advantageous
21 for use in digital studios during editing of MPEG-coded,
22 JPEG-coded and wavelet-coded video and audio data.